

## Toolkit: Stroke Signs & Symptoms

### A Case for Change

#### National Facts:

- Stroke is the fourth leading cause of death in the United States, killing nearly 130,000 annually.<sup>1</sup>
- Stroke accounts for nearly 1 in every 18 deaths nationwide, meaning that someone in the US dies from stroke every 40 seconds.<sup>2</sup>
- Each year, more than 795,000 Americans suffer from stroke, representing nearly 3% of the adult population.<sup>2,3</sup> In 2010, nearly 50% were under the age of 65.<sup>3</sup>
- Seventy-five percent or about 610,000 of those are first time strokes; one in four, 185,000, is a second or recurrent stroke.<sup>2</sup>
- Stroke is a leading cause of chronic disease morbidity and long-term severe disability with nearly 1 million Americans suffering from disability due to stroke.<sup>4</sup>
- The cost for caring for stroke survivors was \$18.8 billion dollars according to 2008 figures with an additional \$15.5 billion in lost productivity and premature mortality.<sup>5</sup>
- Recognizing the signs and symptoms of stroke early can prevent extensive damage from stroke and save lives.
  - Knowing all the signs of stroke improves the likelihood that strokes will be spotted early.
  - The earlier treatment is begun, the better the likelihood for survival and successful recovery.

#### Iowa Facts:

- In 2011, stroke was the main cause of death for 1,431 deaths among Iowans, translating to one death every six hours or 6% of total deaths.<sup>6</sup>
- Of those deaths, 14% of men and 6% of women who died from stroke were under age 65.<sup>7</sup>
- Around 60,000 Iowans aged 18 years and older self-report having had a stroke, representing around 2.4% of the adult population.<sup>4,7</sup>
- Death rates from stroke in 44 Iowa counties were higher than the Health People 2010 goal (48/100,00 deaths), while 10 counties had rates in excess of 60 deaths per 100,000 population.<sup>7</sup>
- The total inpatient hospital costs from stroke in 2009 were over \$72 million. Public funding from Medicaid and Medicare was the payor for more than 76% of this cost at \$59 million.<sup>7</sup>
- Only 25.5% of Iowans reported knowing all six stroke signs and symptoms, according to 2009 data.<sup>7</sup> Meaning nearly 75% of Iowans could miss a sign or symptom to alert them to a stroke.
- While the stroke death rate in Iowa has gone down by 30% over the last decade, there has not been a big difference in self-reported stroke prevalence.<sup>7</sup>
- Given Iowa's aging population, significant decreases in mortality may not be sustainable and additional focus will need to be placed on controlling risk factors and improving outcomes for survivors.<sup>7</sup>

#### Sources:

1. Kochanek KD, Xu J, Murphy SL, Miniño AM, Kung HC. [Deaths: Final Data for 2009](#). *National Vital Statistics Report*. 2011. 60(3).
2. Centers for Disease Control and Prevention. [Summary of Health Statistics for US Adults: National Health Interview Survey, 2010](#). *Vital and Health Statistics*. January 2012; 10(255).
3. Roger VL, Go AS, Lloyd-Jones DM, et al. [Heart disease and stroke statistics—2012 update: A report from the American Heart Association](#). *Circulation*. 2012; 125: e2-e220.
4. Iowa Department of Public Health, Behavioral Risk Factor Surveillance System (BRFSS). *Health in Iowa Annual Report – 2011*.
5. Centers for Disease Control and Prevention. [Prevalence of Stroke – United States, 2006-2010](#). *MMWR Weekly*, 61(20); 379-382.
6. Iowa Department of Public Health. [What We Do Profiles – Heart Disease and Stroke](#). Data updated bi-annually.
7. Iowa Department of Public Health. [Stroke in Iowa](#). Iowa Chronic Disease Report Supplement: 2011. Heart Disease and Stroke Prevention Program.

This Stroke Signs & Symptoms Toolkit was created to provide healthcare providers with the most current and comprehensive resources and knowledge-base available regarding the signs and symptoms of stroke as a means to reduce the burden of stroke through early detection and treatment. With these resources, the Iowa Department of Public Health, Bureau of Chronic Disease Prevention and Management, Heart Disease and Stroke Program (HDSP) is confident that healthcare providers will be able to increase the quantity and quality of provider-initiated education to their patients with stroke risk factors. The HDSP program also encourages healthcare providers to become advocates in their communities in promoting heart-healthy and stroke-free communities and supporting population-based policy change in regards to sodium consumption.

### **Why should Healthcare Providers promote heart-healthy and stroke-free communities?**

Health care leaders can play an important role in protecting the health of people in their care. Remember that your patients see you as an expert and trust your advice. The following are some actions you can take to promote heart-healthy and stroke-free initiatives in all healthcare settings:

#### *1. Demonstrate leadership*

- Apply guidelines and make referrals for all heart disease and stroke patients regardless of sex and race or ethnicity.
- Ensure that health care workers are trained in active listening and cultural sensitivity to optimally care for patients of different cultures and backgrounds.
- Partner with community agencies to offer heart disease and stroke prevention screenings and educational events for the public and follow-up counseling and education for those at risk.
- Pledge and support the Million Hearts™ national and collaborative initiative to reduce 1 million heart attacks and stroke by 2017. For more information and to pledge your support, visit <http://millionhearts.hhs.gov/index.html>.

#### *2. Implement policies and incentives to promote heart-healthy behaviors*

- Institute standardized treatment and prevention protocols that are consistent with national evidence-based guidelines to prevent heart disease, stroke, and related risk factors. Examples of these guidelines include JNC-7 Guidelines for High Blood Pressure, AHA Guidelines for Primary and Secondary Prevention of Cardiovascular Disease and Stroke, and Clinical Practice Guidelines for Treating Tobacco Use and Dependence.
- Track changes in health outcomes and cost.
- Implement the Chronic Care Model for primary care settings and track changes in cardiovascular health indicators. For more information, visit <http://www.improvingchroniccare.org>.
- Provide routine screening and follow-up counseling and education to patients to help prevent and control cardiovascular disease risk factors. These risk factors include high blood pressure, high blood cholesterol, poor nutrition, physical inactivity, tobacco use, Diabetes, and obesity.

#### *3. Promote coverage for and use of preventive health services*

- Institute an electronic medical records system and patient data registries to provide immediate feedback on a patient's condition and compliance with the treatment regimen
- Institute reminder systems to prompt healthcare providers of patients with risk factors for heart disease and stroke to prescribe preventive medication, closely monitor these patients, and encourage them to comply with their treatment and prevention regimen.
- Provide incentives and other support mechanisms to encourage patients and healthcare providers to comply with recommended guidelines for preventing heart disease and stroke.

The actions discussed here are approaches that will bring visibility and support issues of heart disease and stroke; they are interventions that are **evidence-based** through studies and scientific review to support cardiovascular health, and are interventions recommended by CDC's *Guide to Community Preventive Services* or clinical guidelines.

Please do not hesitate to contact the HDSP program with any questions you may have regarding use of the materials in this toolkit.

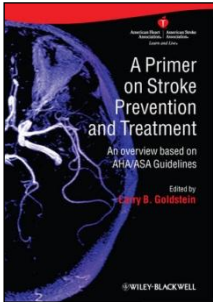
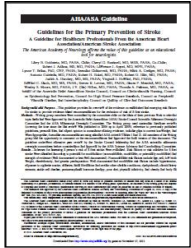
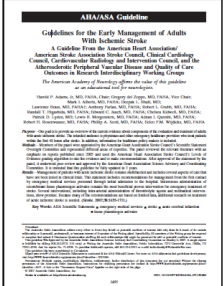

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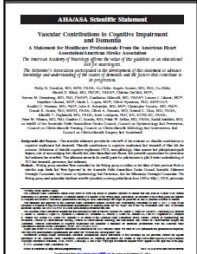
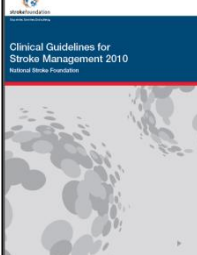

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This toolkit will:

- Provide Iowa health care providers with educational resources to better inform their patients about the signs and symptoms of a stroke.
- Provide Iowa health care providers with evidence and support in order for them to become advocates for policy/environmental change.

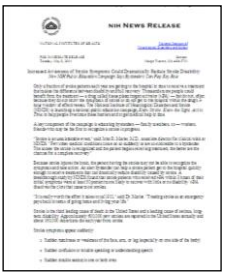
## Clinical Guidelines and Protocols

<p><b>A Primer on Stroke Prevention and Treatment: An overview based on AHA/ASA Guidelines.</b> Larry B Goldstein (Editor). Published April 2009.</p> <p>A comprehensive accumulation of valuable stroke guidelines from the American Heart Association/American Stroke Association (AHA/ASA) meant to serve as a quick reference to ease provider use of guidelines and care recommendations.</p> <p><i>Available for purchase as hardcover volume for \$104.95 or as an E-book for \$84.99, both from Wiley-Blackwell Publishers.</i></p> <p><a href="http://www.wiley.com/WileyCDA/WileyTitle/productCd-1405186518,descCd-description.html">http://www.wiley.com/WileyCDA/WileyTitle/productCd-1405186518,descCd-description.html</a></p>	
<p><b>Guidelines for the Primary Prevention of Stroke.</b> American Heart Association/American Stroke Association. Published December 2010.</p> <p>Overview of evidence-based recommendations for the prevention of first strokes based on established and emerging risk factors.</p> <p><i>Free PDF available.</i></p> <p><a href="http://stroke.ahajournals.org/content/42/2/517.full.pdf+html">http://stroke.ahajournals.org/content/42/2/517.full.pdf+html</a></p>	
<p><b>Guidelines for the Early Management of Adults with Ischemic Stroke.</b> American Heart Association/American Stroke Association. Published May 2007.</p> <p>An overview of evidence-based evaluation and treatment of stroke for physicians and emergency healthcare providers who treat patients within 48 hours of stroke with added information for healthcare policy makers.</p> <p><i>Free PDF available.</i></p> <p><a href="http://stroke.ahajournals.org/content/38/5/1655.full.pdf+html">http://stroke.ahajournals.org/content/38/5/1655.full.pdf+html</a></p>	
<p><b>Reducing Delay in Seeking Treatment by Patients With Acute Coronary Syndrome and Stroke.</b> American Heart Association/American Heart Association. Published June 2006.</p> <p>A discussion of the current factors contributing to patient delay in seeking treatment and recommendations for clinical practice and ongoing research to help break down these barriers and improve patient treatment response.</p> <p><i>Free PDF available.</i></p> <p><a href="http://circ.ahajournals.org/content/114/2/168.full.pdf+html">http://circ.ahajournals.org/content/114/2/168.full.pdf+html</a></p>	

<p><b>Guidelines for Prevention of Stroke in Patients with Ischemic Stroke or Transient Ischemic Attack.</b> American Heart Association/American Stroke Association. Published February 2006.</p> <p>Guidelines for the secondary prevention of stroke, including evidence-based recommendations for control of risk factors and related interventions.</p> <p><i>Free PDF available.</i>  <a href="http://stroke.ahajournals.org/content/37/2/577.full.pdf+html">http://stroke.ahajournals.org/content/37/2/577.full.pdf+html</a></p>	
<p><b>Vascular Contributions to Cognitive Impairment and Dementia.</b> American Heart Association/American Stroke Association. Published September 2011.</p> <p>A review of the consequences of stroke and other cerebral vascular brain injury with regards to cognitive dysfunction and dementia syndromes.</p> <p><i>Free PDF available.</i>  <a href="http://stroke.ahajournals.org/content/42/9/2672.full.pdf+html">http://stroke.ahajournals.org/content/42/9/2672.full.pdf+html</a></p>	
<p><b>Clinical Guideline for Stroke Management 2010.</b> National Stroke Foundation (Australia). Published 2010.</p> <p>Comprehensive guide for stroke management from the National Stroke Foundation of Australia, including a chapter on stroke recognition and pre-hospital care.</p> <p><i>Free PDF available.</i>  <a href="http://strokefoundation.com.au/site/media/clinical_guidelines_stroke_management_2010_interactive.pdf">http://strokefoundation.com.au/site/media/clinical_guidelines_stroke_management_2010_interactive.pdf</a></p>	
<p><b>Healthy People 2020.</b> US Department of Health and Human Services. Last updated October 10, 2012.</p> <p>Objective HDS-17 identifies increasing the proportion of US adults over age 20 that are aware of, recognize, and react appropriately to signs and symptoms of stroke as a goal of Healthy People 2020 under Heart Disease and Stroke Prevention (HDS).</p> <p><i>Available online.</i>  <a href="http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=21">http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=21</a></p>	

## Educational Materials

### Provider Education

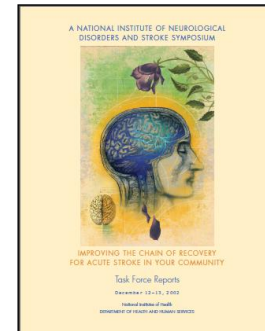
<p><b>Increased Awareness of Stroke Symptoms Could Dramatically Reduce Stroke Disability.</b> National Institute of Health. Released May 8, 2001.</p> <p>Press release from the National Institute of Health (NIH) acknowledging awareness of stroke signs and symptoms and early response times as vital components in improving stroke outcomes.</p> <p><i>Available online.</i>  <a href="http://www.nih.gov/news/pr/may2001/ninds-08.htm">http://www.nih.gov/news/pr/may2001/ninds-08.htm</a></p>	
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**Increasing Public Recognition and Rapid Response to Stroke. Improving the Chain of Recovery for Acute Stroke in Your Community: Task Force Report.** National Institute of Neurological Disorders and Stroke. Institutes of Health. Last updated July 15, 2008.

Comprehensive task force report detailing effective and sustained public awareness campaigns promoting stroke symptom awareness as key measure for improved stroke outcome and recovery.

Available online.

[http://stroke.nih.gov/resources/stroke\\_2002/acute\\_stroke\\_public\\_recogn.htm](http://stroke.nih.gov/resources/stroke_2002/acute_stroke_public_recogn.htm)



**Patients' Awareness of Stroke Signs, Symptoms, and Risk Factors.** Kothari, R, Sauerbeck, L, Jauch, E, et al. *Stroke* 1997, 28: 1871-1875. Last updated July 24, 1997.

Review of study identifying patient knowledge of stroke signs and risk factors as lacking and in need of greater patient education to increase awareness.

Available online.

<http://stroke.ahajournals.org/content/28/10/1871.long>

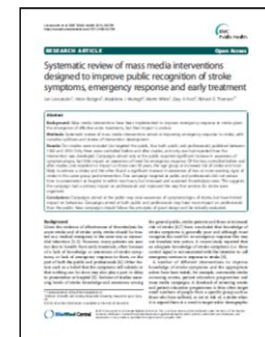


**Systematic review of mass media interventions designed to improve public recognition of stroke symptoms, emergency response and early treatment.** Lecouturier, J, Rodgers, H, Murtagh, M, et al. *BMC Public Health* 2010, 10: 784. Published December 23, 2010.

Discussion and review of effectiveness of media campaigns on improving public awareness of stroke symptoms leading to earlier recognition and treatment.

Free PDF available.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3022856/pdf/1471-2458-10-784.pdf>



**Translating Evidence Into Practice: A Decade of Efforts by the American Heart Association/American Stroke Association to Reduce Death and Disability Due to Stroke.** American Heart Association/American Stroke Association. Published May 2010.

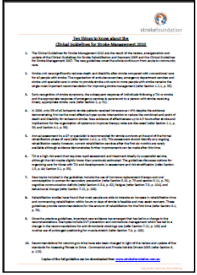
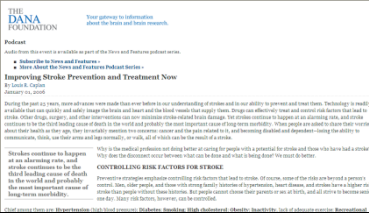
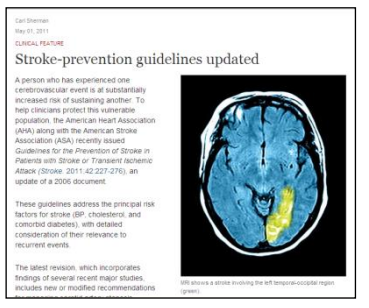
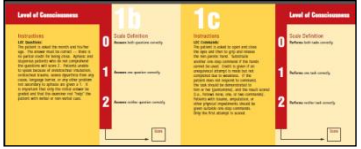
Review of last ten years of AHA/ASA and partner efforts and actions to reduce the burden of stroke morbidity and mortality, including collaborative patient education and community awareness programs.

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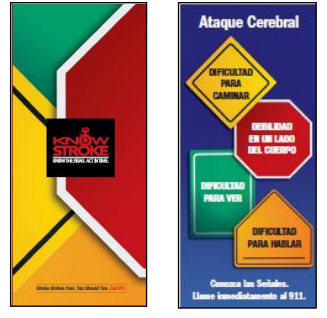
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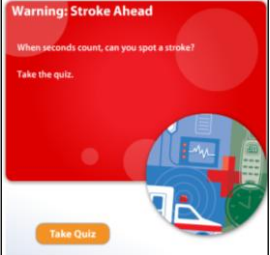
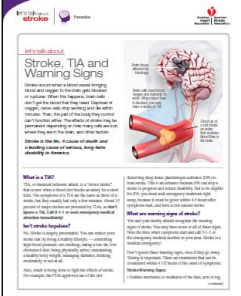





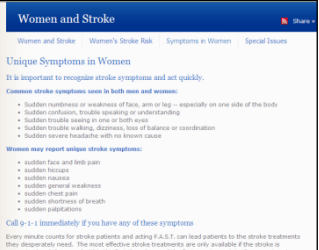



<p><b>Clinical Guidelines Stroke Management 2010 Fact Sheet.</b> National Stroke Foundation (Australia). Published 2010.</p> <p>Fact sheet highlighting the top ten things to know about stroke management (with reference to topic as appears in the full guideline).</p> <p>Free PDF available.  <a href="http://strokefoundation.com.au/site/media/clinical_guidelines_stroke_management_2010_fact_sheet.pdf">http://strokefoundation.com.au/site/media/clinical_guidelines_stroke_management_2010_fact_sheet.pdf</a></p>	
<p><b>Improving Stroke Prevention and Treatment Now.</b> Caplan, LR. <i>The Dana Foundation online</i>. Published January 1, 2006.</p> <p>Discussion of stroke and the need for greater preventative measures, including early warning signs and symptoms, and early treatment for improved outcomes.</p> <p>Available online.  <a href="http://www.dana.org/news/cerebrum/detail.aspx?id=680">http://www.dana.org/news/cerebrum/detail.aspx?id=680</a></p>	
<p><b>Stroke-prevention guidelines updated.</b> Sherman, C. <i>Clinical Advisor</i>. Published May 1, 2011.</p> <p>Article reviewing the latest guidelines for stroke prevention related to primary risk factors for stroke.</p> <p>Available online.  <a href="http://www.clinicaladvisor.com/stroke-prevention-guidelines-updated/article/201987/2/">http://www.clinicaladvisor.com/stroke-prevention-guidelines-updated/article/201987/2/</a></p>	
<p><b>NIH Stroke Scale.</b> US Department of Health and Human Services, National Institute of Health, National Institute of Neurological Disorders and Stroke (NINDS).</p> <p>Graphic guide for assistance in assessing stroke symptoms and stages of stroke.</p> <p>Free PDF available.  <a href="http://www.ninds.nih.gov/doctors/NIH_Stroke_Scale_Booklet.pdf">http://www.ninds.nih.gov/doctors/NIH_Stroke_Scale_Booklet.pdf</a></p>	






## Patient Education


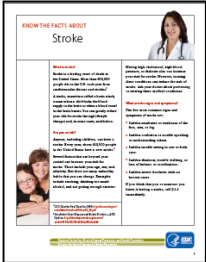
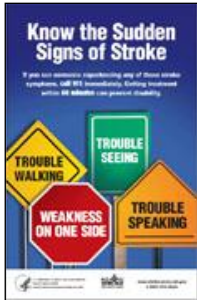
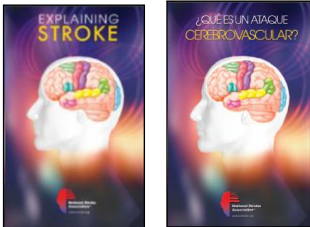

<p><b>Know Stroke. Know the Signs. Act in Time.</b> US Department of Health and Human Services, National Institute of Health, National Institute of Neurological Disorders and Stroke (NINDS). Published May 2010.</p> <p>Brochure identifying symptoms of stroke and the importance of responding quickly to the signs of stroke.</p> <p>Free PDF available and brochures for order (free of charge through NINDS).  <a href="http://stroke.nih.gov/documents/ninds_ks_english_4x9_brochure.pdf">http://stroke.nih.gov/documents/ninds_ks_english_4x9_brochure.pdf</a> - English  <a href="http://stroke.nih.gov/documents/ninds_ks_Spanish_4x9_brochure.pdf">http://stroke.nih.gov/documents/ninds_ks_Spanish_4x9_brochure.pdf</a> - Spanish  <a href="http://ice.iqsolutions.com/ice/NINDS/strokepubs.asp">http://ice.iqsolutions.com/ice/NINDS/strokepubs.asp</a> - To order</p>	
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<p><b>Stroke Warning Signs.</b> American Stroke Association. Last updated 2012.</p> <p>Overview of the stroke warning sign acronym, FAST, identifying the symptoms and signs of stroke and prompting to respond quickly.</p> <p><i>Available online.</i>  <a href="http://www.strokeassociation.org/STROKEORG/WarningSigns/Stroke-Warning-Signs_UCM_308528_SubHomePage.jsp">http://www.strokeassociation.org/STROKEORG/WarningSigns/Stroke-Warning-Signs_UCM_308528_SubHomePage.jsp</a></p>	 <p><b>STROKE WARNING SIGNS</b></p> <p><b>F</b> <b>A</b> <b>S</b> <b>T</b></p> <p><b>F</b> <b>A</b> <b>S</b> <b>T</b> is an easy way to remember the warning signs of a stroke. When you can spot the signs, such as face drooping, arm weakness, speech difficulty, or time to call 911, you can act quickly to get the person the care they need.</p> <p><b>F</b> <b>A</b> <b>S</b> <b>T</b> is an easy way to remember the warning signs of a stroke. When you can spot the signs, such as face drooping, arm weakness, speech difficulty, or time to call 911, you can act quickly to get the person the care they need.</p>
<p><b>Warning Signs of Stroke.</b> National Stroke Association.</p> <p>Breakdown of the FAST – face, arms, speech, time, method to recognize signs of a stroke and immediate dialing of 911.</p> <p><i>Available online.</i>  <a href="http://www.stroke.org/site/PageServer?pagename=SYMP">http://www.stroke.org/site/PageServer?pagename=SYMP</a></p>	 <p><b>FAST</b></p> <p><b>F</b> <b>A</b> <b>S</b> <b>T</b></p> <p><b>F</b> <b>A</b> <b>S</b> <b>T</b> is an easy way to remember the warning signs of a stroke. When you can spot the signs, such as face drooping, arm weakness, speech difficulty, or time to call 911, you can act quickly to get the person the care they need.</p>
<p><b>Stroke Warning Signs Factsheet.</b> American Heart Association/American Stroke Association.</p> <p>Factsheet identifying five stroke warning signs and detailing need to contact 911 immediately. Recommends noting time of symptoms to ensure appropriate treatment.</p> <p><i>Free PDF available.</i>  <a href="http://www.heart.org/idc/groups/heart-public/@wcm/@gra/documents/downloadable/ucm_439076.pdf">http://www.heart.org/idc/groups/heart-public/@wcm/@gra/documents/downloadable/ucm_439076.pdf</a></p>	 <p><b>Stroke is a medical emergency. KNOW THE WARNING SIGNS!</b></p> <ul style="list-style-type: none"> <li>Stroke symptoms are weakness of the face, arm or leg, especially on one side of the body.</li> <li>Stroke symptoms include speaking or understanding.</li> <li>Stroke symptoms include sudden loss of vision.</li> <li>Stroke symptoms include sudden loss of balance or coordination.</li> <li>Stroke symptoms include sudden loss of consciousness.</li> </ul> <p>Remember: call 911 or the emergency medical services (EMS) number in an ambulance can be used for you.</p> <p>Time counts! Stroke is a medical emergency. If you notice any of these signs, call 911 immediately. Every minute counts. The faster you get medical help, the better the outcome.</p>
<p><b>Stroke Warning Signs Quiz.</b> American Stroke Association.</p> <p>Interactive short quiz to test one's knowledge of stroke warning signs and symptoms to identify a stroke with educational feedback following questions.</p> <p><i>Available online.</i>  <a href="http://www.strokeassociation.org/STROKEORG/WarningSigns/StrokeWarningSignsQuiz/Stroke-Warning-Signs-Quiz_UCM_308584_Article.jsp">http://www.strokeassociation.org/STROKEORG/WarningSigns/StrokeWarningSignsQuiz/Stroke-Warning-Signs-Quiz_UCM_308584_Article.jsp</a></p>	 <p><b>Warning: Stroke Ahead</b></p> <p>When seconds count, can you spot a stroke?</p> <p>Take the quiz.</p> <p>Take Quiz</p>
<p><b>Stroke, TIA, and Warning Signs.</b> American Heart Association/American Stroke Association. Published 2012.</p> <p>Fact sheet detailing the warning signs for stroke, including TIA as a “minor stroke” that may precede a major stroke.</p> <p><i>Free PDF available.</i>  <a href="http://www.strokeassociation.org/idc/groups/stroke-public/@wcm/@hcm/@sta/documents/downloadable/ucm_309532.pdf">http://www.strokeassociation.org/idc/groups/stroke-public/@wcm/@hcm/@sta/documents/downloadable/ucm_309532.pdf</a></p>	 <p><b>Stroke, TIA, and Warning Signs</b></p> <p>Stroke is a medical emergency. When you notice any of the warning signs, call 911 immediately. Every minute counts. The faster you get medical help, the better the outcome.</p> <p>What is a TIA?</p> <p>A transient ischemic attack (TIA) is a temporary disruption of blood flow to the brain. It is often called a “mini-stroke” because it causes temporary symptoms that usually last less than 24 hours. A TIA is a warning sign of a stroke.</p> <p>What are the warning signs of stroke?</p> <p>Stroke symptoms are weakness of the face, arm or leg, especially on one side of the body. Stroke symptoms include speaking or understanding. Stroke symptoms include sudden loss of vision. Stroke symptoms include sudden loss of balance or coordination. Stroke symptoms include sudden loss of consciousness.</p>



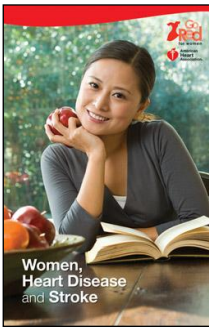
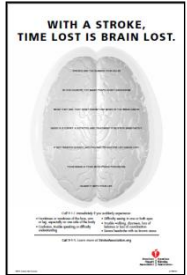


<p><b>Reducing Stroke and Recognizing Symptoms.</b> National Stroke Association. Published August 2009.</p> <p>Factsheet(s) emphasizing stroke prevention, signs and symptoms, and stroke as an emergency event.</p> <p><i>Free PDF available.</i>  <a href="http://www.stroke.org/site/DocServer/ReducingRisk_8-09.pdf?docID=3027">http://www.stroke.org/site/DocServer/ReducingRisk_8-09.pdf?docID=3027</a></p>	
<p><b>Unique Symptoms in Women.</b> American Stroke Association. Last updated May 2010.</p> <p>Overview of some of the unique symptoms women may experience in the event of a stroke. Provides general as well as women specific symptoms.</p> <p><i>Available online.</i>  <a href="http://www.stroke.org/site/PageServer?pagename=WOMSYMP">http://www.stroke.org/site/PageServer?pagename=WOMSYMP</a></p>	
<p><b>Stroke Risk Factors and Symptoms.</b> US Department of Health and Human Services, National Institute of Health, National Institute of Neurological Disorders and Stroke (NINDS).</p> <p>Small bookmark style brochure identifying stroke risk factors and symptoms.</p> <p><i>Information available for download and brochures for order (free from NINDS).</i>  <a href="http://stroke.nih.gov/materials/riskfactors.htm">http://stroke.nih.gov/materials/riskfactors.htm</a> - English  <a href="http://stroke.nih.gov/materials/riskfactorsspanish.htm">http://stroke.nih.gov/materials/riskfactorsspanish.htm</a> - Spanish</p>	
<p><b>What You Need to Know About Stroke.</b> US Department of Health and Human Services, National Institute of Health, National Institute of Neurological Disorders and Stroke (NINDS). Published April 2004.</p> <p>Full color brochure stressing “Know the Signs. Act in Time.” Featuring personal testimonials from stroke survivors.</p> <p><i>Free PDF available and brochures for order (free from NINDS).</i>  <a href="http://stroke.nih.gov/documents/NIH_NINDS_KnowStrokeAABroch.pdf">http://stroke.nih.gov/documents/NIH_NINDS_KnowStrokeAABroch.pdf</a> - English  <a href="http://stroke.nih.gov/documents/KnowStroke_SpanishBrochure_08_V32.pdf">http://stroke.nih.gov/documents/KnowStroke_SpanishBrochure_08_V32.pdf</a> - Spanish version  <a href="http://ice.igsolutions.com/ice/NINDS/strokepubs.asp">http://ice.igsolutions.com/ice/NINDS/strokepubs.asp</a> - To order</p>	
<p><b>Know Stroke Information Card.</b> US Department of Health and Human Services, National Institute of Health, National Institute of Neurological Disorders and Stroke.</p> <p>Free wallet card highlighting sudden signs of stroke with areas for patients to track weight, height, and cholesterol to aid in control of risk factors.</p> <p><i>Free PDF available and cards for order (free from NINDS).</i>  <a href="http://stroke.nih.gov/documents/NINDS_KS_WalletCard_3-5x4.pdf">http://stroke.nih.gov/documents/NINDS_KS_WalletCard_3-5x4.pdf</a>  <a href="http://ice.igsolutions.com/ice/NINDS/strokepubs.asp">http://ice.igsolutions.com/ice/NINDS/strokepubs.asp</a> - To order</p>	



<p><b>Explaining Stroke.</b> PowerPoint Presentation. National Stroke Association.</p> <p>An excellent educational stroke presentation that provides clear and easy to understand information including defining stroke .</p> <p>Available online.  <a href="http://www.stroke.org/site/DocServer/Stroke_Ed_Presentation_Guide07_-_FINAL.ppt?docID=1181">http://www.stroke.org/site/DocServer/Stroke_Ed_Presentation_Guide07_-_FINAL.ppt?docID=1181</a></p>	
<p><b>Questions and Answers About Stroke.</b> National Institute of Neurological Disorders and Stroke. Last updated September 30, 2004.</p> <p>Webpage discussion of frequent questions about stroke, including stroke signs and symptoms and why it is important to <i>act fast</i>.</p> <p>Available online.  <a href="http://www.ninds.nih.gov/disorders/stroke/stroke_backgrounder.htm">http://www.ninds.nih.gov/disorders/stroke/stroke_backgrounder.htm</a></p>	
<p><b>When to Call 911.</b> American Heart Association/American Stroke Association.</p> <p>Quick reference page confirming stroke signs that should not be ignored and the need to call 911 immediately for medical attention.</p> <p>Available online.  <a href="http://www.heart.org/HEARTORG/HealthcareResearch/MyHealthcare/WhentoCall911/QI-When-To-Call-911_UCM_441815_SubHomePage.jsp">http://www.heart.org/HEARTORG/HealthcareResearch/MyHealthcare/WhentoCall911/QI-When-To-Call-911_UCM_441815_SubHomePage.jsp</a></p>	
<p><b>Let's Talk About: High Blood Pressure and Stroke.</b> American Heart Association/American Stroke Association. Published 2012.</p> <p>An informational hand-out detailing hypertension as a risk factor for stroke with recommendations for blood pressure control.</p> <p>Free PDF available.  <a href="http://www.heart.org/idc/groups/stroke-public/@wcm/@hcm/documents/downloadable/ucm_309711.pdf">http://www.heart.org/idc/groups/stroke-public/@wcm/@hcm/documents/downloadable/ucm_309711.pdf</a></p>	
<p><b>What Are Heart Disease and Stroke?</b> American Heart Association/American Stroke Association. Published 2012.</p> <p>Informational hand-out detailing heart disease and stroke, including stroke and TIA signs and symptoms.</p> <p>Free PDF available.  <a href="http://www.heart.org/idc/groups/heart-public/@wcm/@hcm/documents/downloadable/ucm_300313.pdf">http://www.heart.org/idc/groups/heart-public/@wcm/@hcm/documents/downloadable/ucm_300313.pdf</a></p>	

<p><b>Stroke 101 Fact Sheet.</b> National Stroke Association.</p> <p>Fact sheets overviewing what stroke is, prevalence, risk factors, signs and symptoms, and stroke prevention.</p> <p><i>Free PDF available.</i>  <a href="http://www.stroke.org/site/DocServer/STROKE101_2009.pdf?docID=4541">http://www.stroke.org/site/DocServer/STROKE101_2009.pdf?docID=4541</a></p>	
<p><b>Know the Facts About Stroke.</b> Centers for Disease Control and Prevention (CDC), National Center for Chronic Disease Prevention and Health Promotion, Division for Heart Disease and Stroke Prevention.</p> <p>CDC fact sheet detailing stroke, signs and symptoms, risk, prevention, and treatment.</p> <p><i>Free PDF available.</i>  <a href="http://www.cdc.gov/stroke/docs/ConsumerEd_Stroke.pdf">http://www.cdc.gov/stroke/docs/ConsumerEd_Stroke.pdf</a></p>	
<p><b>Know the Sudden Signs of Stroke.</b> Poster. US Department of Health and Human Services, National Institute of Health, National Institute of Neurological Disorders and Stroke.</p> <p>Graphic 11" x 17" poster showing the signs to recognize stroke and stressing to call 911 immediately to receive immediate treatment. <i>Available in both English and Spanish.</i></p> <p><i>Available for order (free from NINDS).</i>  <a href="http://ice.igsolutions.com/ice/NINDS/strokepubs.asp">http://ice.igsolutions.com/ice/NINDS/strokepubs.asp</a> - To order (both versions)</p>	
<p><b>Explaining Stroke.</b> National Stroke Association. Published November 2007.</p> <p>Colorful informational brochure with extensive coverage of stroke, including different types of stroke, risk factors, prevention, and symptoms.</p> <p><i>Free PDF available.</i>  <a href="http://www.stroke.org/site/DocServer/Explaining_Stroke.pdf?docID=3321">http://www.stroke.org/site/DocServer/Explaining_Stroke.pdf?docID=3321</a> –English  <a href="http://www.stroke.org/site/DocServer/Explaining_Stroke_Spanish2.pdf?docID=7163">http://www.stroke.org/site/DocServer/Explaining_Stroke_Spanish2.pdf?docID=7163</a> – Spanish</p>	
<p><b>Reducing Stroke and Recognizing Symptoms – Spanish.</b> National Stroke Association. Published September 2005.</p> <p>Short pamphlet for Spanish –speaking patients to understand and identify the symptoms of stroke.</p> <p><i>Free PDF available.</i>  <a href="http://www.stroke.org/site/DocServer/Reducing_Risk_Spanish_2005_2.pdf?docID=7162">http://www.stroke.org/site/DocServer/Reducing_Risk_Spanish_2005_2.pdf?docID=7162</a></p>	

<p><b>Stroke Prevention.</b> National Stroke Association. Published November 2010.</p> <p>Short bi-fold pamphlet focusing on stroke prevention with inclusion of warning signs of stroke.</p> <p>Free PDF download.  <a href="http://www.stroke.org/site/DocServer/NSAStrokePreventionBrochure_sm.pdf?docID=3324">http://www.stroke.org/site/DocServer/NSAStrokePreventionBrochure_sm.pdf?docID=3324</a></p>	
<p><b>Transient Ischemic Attack (TIA).</b> National Stroke Association. Published March 2011.</p> <p>Small brochure about TIA, emphasizing that signs and symptoms for TIA mini-strokes are same as for major strokes with only providers able to tell which is occurring and need for TIA symptoms to be taken seriously.</p> <p>Free PDF available.  <a href="http://www.stroke.org/site/DocServer/TIA.pdf?docID=405">http://www.stroke.org/site/DocServer/TIA.pdf?docID=405</a> – English  <a href="http://www.stroke.org/site/DocServer/EspanolTIA_web.pdf?docID=7322">http://www.stroke.org/site/DocServer/EspanolTIA_web.pdf?docID=7322</a> – Spanish</p>	
<p><b>Learn the Signs of Stroke.</b> Massachusetts Department of Public Health, Heart Disease and Stroke Control Program.</p> <p>Brochure identifying signs and symptoms of stroke using the FAST method.</p> <p>Free PDF available.  <a href="http://files.hria.org/files/HD2101.pdf">http://files.hria.org/files/HD2101.pdf</a> - English  <a href="http://files.hria.org/files/HD2120.pdf">http://files.hria.org/files/HD2120.pdf</a> - Spanish  <a href="http://files.hria.org/files/HD2141.pdf">http://files.hria.org/files/HD2141.pdf</a> - Khmer</p>	
<p><b>Learn the Signs of Stroke.</b> Poster. Massachusetts Department of Public Health, Heart Disease and Stroke Control Program.</p> <p>Graphic 11" x 17" poster displaying the FAST method for recognizing stroke.</p> <p>Free PDF available.  <a href="http://files.hria.org/files/HD2102.pdf">http://files.hria.org/files/HD2102.pdf</a> - English  <a href="http://files.hria.org/files/HD2122.pdf">http://files.hria.org/files/HD2122.pdf</a> - Spanish  <a href="http://files.hria.org/files/HD2142.pdf">http://files.hria.org/files/HD2142.pdf</a> - Khmer</p>	
<p><b>Learn the Signs of Stroke.</b> Wallet card. Massachusetts Department of Public Health, Heart Disease and Stroke Control Program.</p> <p>Pocket or wallet sized quick reference of stroke signs and symptoms.</p> <p>Free PDF available.  <a href="http://files.hria.org/files/HD2107.pdf">http://files.hria.org/files/HD2107.pdf</a> - English  <a href="http://files.hria.org/files/HD2127.pdf">http://files.hria.org/files/HD2127.pdf</a> - Spanish  <a href="http://files.hria.org/files/HD2143.pdf">http://files.hria.org/files/HD2143.pdf</a> - Khmer</p>	




<p><b>Warning Signs of Stroke: Our Easy Reading Guide to Emergency Action.</b> American Heart Association/American Stroke Association.</p> <p>Easy read brochure addressing early warning signs of stroke and need to call 911 immediately for medical attention. (Also available in Spanish/English bilingual.)</p> <p><i>Order 50 brochures for \$34.50 from Krames/Staywell.</i>  <a href="https://www.kramesstore.com/OA_HTML/ibeCCTpltmDspRte_kra.jsp?JServSessionIdrootistore4=bo56or4o31.olbOpR9zb2TNr65TrQjGp2TxpQQUtxCLbx0Kae--&amp;dbprod_prod=R_7YAI8Ltn8Bol08SMzgJpb:S&amp;dbprod_prod_pses=ZG7BB1A12CDAF0D4B1C67FA433FA7C711E6E7F4ABC51754A9AB0FCC4400BBF64F3E04B7B030E9EB1C810BA28357B7E18B0917B88ACD03E5C18E5A9F017AE75416E&amp;item=382410">https://www.kramesstore.com/OA_HTML/ibeCCTpltmDspRte_kra.jsp?JServSessionIdrootistore4=bo56or4o31.olbOpR9zb2TNr65TrQjGp2TxpQQUtxCLbx0Kae--&amp;dbprod_prod=R_7YAI8Ltn8Bol08SMzgJpb:S&amp;dbprod_prod_pses=ZG7BB1A12CDAF0D4B1C67FA433FA7C711E6E7F4ABC51754A9AB0FCC4400BBF64F3E04B7B030E9EB1C810BA28357B7E18B0917B88ACD03E5C18E5A9F017AE75416E&amp;item=382410</a></p>	
<p><b>Warning Signs and Actions: Our Guide to Quick Action for Heart Attack, Cardiac Arrest, and Stroke Emergencies.</b> American Heart Association/American Stroke Association.</p> <p>Comprehensive overview of signs and symptoms for stroke and emergency cardiac events with instruction for dialing 911 and immediate medical attention. Booklet is Spanish/English bilingual.</p> <p><i>Order 25 booklets for \$39.50 from Krames/Staywell.</i>  <a href="https://www.kramesstore.com/OA_HTML/ibeCCTpltmDspRte_kra.jsp?JServSessionIdrootistore2=55ef4u6d61.olbOpR9zawTNr65TrQjGp2TxpQQUtxCLbx0Kae--&amp;dbprod_prod=aFZnZUNdGiT_mEi5Bn53FYk2:S&amp;dbprod_prod_pses=ZGFB489E32A0C394F71084AC8D7F7D8A0C333E3215091BA700EF2773E10FE170F6123CF1158BF28C477272258D2C3B40AD3A5730465BABB07C66CCDCA4E4A904AD&amp;item=561410">https://www.kramesstore.com/OA_HTML/ibeCCTpltmDspRte_kra.jsp?JServSessionIdrootistore2=55ef4u6d61.olbOpR9zawTNr65TrQjGp2TxpQQUtxCLbx0Kae--&amp;dbprod_prod=aFZnZUNdGiT_mEi5Bn53FYk2:S&amp;dbprod_prod_pses=ZGFB489E32A0C394F71084AC8D7F7D8A0C333E3215091BA700EF2773E10FE170F6123CF1158BF28C477272258D2C3B40AD3A5730465BABB07C66CCDCA4E4A904AD&amp;item=561410</a></p>	
<p><b>Women, Heart Disease, and Stroke.</b> American Heart Association, Go Red for Women.</p> <p>Informational booklet aimed at women and addressing their risk factors and unique symptoms for stroke and cardiac events.</p> <p><i>Order 25 booklets for \$38.50 from Krames/Staywell.</i>  <a href="https://www.kramesstore.com/OA_HTML/ibeCCTpltmDspRte_kra.jsp?JServSessionIdrootistore1=whssf46621.olbOpR9zagTNr65TrQjGp2TxpQQUtxCLbx0Kae--&amp;dbprod_prod=xmdKwzRAwThbtwMUIa9ViuaD:S&amp;dbprod_prod_pses=ZG2501D155EDED6547583D4DD37B674D87D3B63349167CD6218694E7A09B60A26F96B6C1BAF78BCB175BB416804C1B206E60B8E5D87B98294344D7B47B3D04AA22&amp;item=990409">https://www.kramesstore.com/OA_HTML/ibeCCTpltmDspRte_kra.jsp?JServSessionIdrootistore1=whssf46621.olbOpR9zagTNr65TrQjGp2TxpQQUtxCLbx0Kae--&amp;dbprod_prod=xmdKwzRAwThbtwMUIa9ViuaD:S&amp;dbprod_prod_pses=ZG2501D155EDED6547583D4DD37B674D87D3B63349167CD6218694E7A09B60A26F96B6C1BAF78BCB175BB416804C1B206E60B8E5D87B98294344D7B47B3D04AA22&amp;item=990409</a></p>	
<p><b>With a Stroke, Time Lost is Brain Lost.</b> Poster. American Stroke Association.</p> <p>PSA poster emphasizing ability of stroke to be prevented and recovery improved by quick recognition of a stroke and early treatment.</p> <p>Free PDF available.  <a href="http://www.strokeassociation.org/idc/groups/heart-public/@wcm/@global/documents/downloadable/ucm_312284.pdf">http://www.strokeassociation.org/idc/groups/heart-public/@wcm/@global/documents/downloadable/ucm_312284.pdf</a></p>	










<p><b>Personal Risk Assessment.</b> American Heart Association/American Stroke Association, Power to End Stroke.</p> <p>Quick click of stroke risk factors to help patient identify their personal risk for stroke.</p> <p><i>Available online.</i>  <a href="http://www.powertoendstroke.org/tools-risk.html">http://www.powertoendstroke.org/tools-risk.html</a></p>	
<p><b>Stroke Risk Scorecard.</b> National Stroke Association.</p> <p>Colorful two-sided scorecard to assist patients in determining personal stroke risk with FAST symptoms for recognizing stroke.</p> <p><i>Free PDF available.</i>  <a href="http://www.stroke.org/site/DocServer/Scorecard.Q_08.pdf?docID=601">http://www.stroke.org/site/DocServer/Scorecard.Q_08.pdf?docID=601</a></p>	


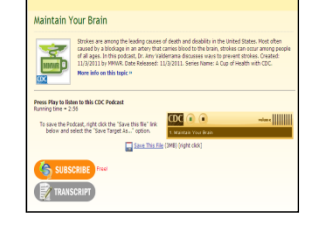
## Additional Resources

### Media

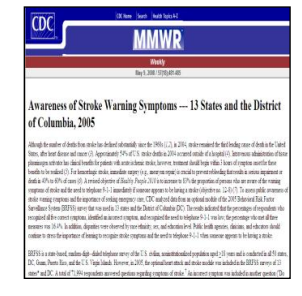
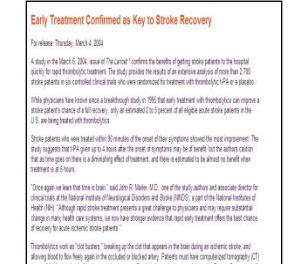
<p><b>“Arrow” PSA.</b> Video. American Heart Association/American Stroke Association.. Uploaded June 16, 2009.</p> <p>Short public service announcement (PSA) encouraging viewers to take signs and symptoms of stroke seriously through likening ignoring stroke symptoms to ignoring an arrow in the chest.</p> <p><i>Available online.</i>  <a href="http://www.youtube.com/watch?v=tJl1mmYarc&amp;list=PLF6908EB89BB24ECD&amp;index=3">http://www.youtube.com/watch?v=tJl1mmYarc&amp;list=PLF6908EB89BB24ECD&amp;index=3</a></p>	
<p><b>“Bear Trap” PSA.</b> Video. American Heart Association/American Stroke Association. Uploaded June 16, 2009.</p> <p>Another public service announcement encouraging viewers to take signs and symptoms of stroke seriously, this time by likening ignoring the symptoms to ignoring a bear trap on your leg.</p> <p><i>Available online.</i>  <a href="http://www.youtube.com/watch?v=rZgQ6qW4yiY&amp;list=PLF6908EB89BB24ECD&amp;feature=bf_prev">http://www.youtube.com/watch?v=rZgQ6qW4yiY&amp;list=PLF6908EB89BB24ECD&amp;feature=bf_prev</a></p>	
<p><b>Stroke Warning Signs.</b> Video. American Heart Association/American Stroke Association. Uploaded March 30, 2012.</p> <p>Video education for patients on the warning signs of stroke with commentary from Dr. Camilo Gomez and stroke survivors talking about their symptoms.</p> <p><i>Available online.</i>  <a href="http://www.youtube.com/watch?v=k9nwDfzibYY&amp;list=PLF6908EB89BB24ECD&amp;index=4">http://www.youtube.com/watch?v=k9nwDfzibYY&amp;list=PLF6908EB89BB24ECD&amp;index=4</a></p>	



<p><b>Know Stroke.</b> Video. US Department of Health and Human Services, National Institute of Health, National Institute of Neurological Disorders and Stroke.</p> <p>Short feature video with information regarding stroke prevention, signs and symptoms, what to do in case of a stroke, and including personal success stories.</p> <p>Available online.  <a href="http://stroke.nih.gov/materials/knowstrokevideo.htm">http://stroke.nih.gov/materials/knowstrokevideo.htm</a> - English  <a href="http://stroke.nih.gov/materials/knowstrokevideoSpanish.htm#transcript">http://stroke.nih.gov/materials/knowstrokevideoSpanish.htm#transcript</a> - Spanish</p>	 
<p><b>A Stroke Strikes Without Warning.</b> Video. North Carolina Heart Disease and Stroke Prevention Program. Uploaded April 11, 2011.</p> <p>PSA highlighting signs and symptoms of stroke and need to act fast.</p> <p>Available online.  <a href="http://www.youtube.com/watch?v=pXsdC_GUBRM">http://www.youtube.com/watch?v=pXsdC_GUBRM</a></p>	
<p><b>Game Show – Call 911.</b> Video. North Carolina Heart Disease and Stroke Prevention Program. Uploaded May 20, 2009.</p> <p>PSA using game show parody to emphasize need to call 911 for stroke symptoms.</p> <p>Available online.  <a href="http://www.youtube.com/watch?v=YJEdNi2-W5k">http://www.youtube.com/watch?v=YJEdNi2-W5k</a></p>	
<p><b>Stroke Heroes Act FAST.</b> Video. Massachusetts Department of Public Health.</p> <p>PSA animation showcasing the stroke in real-life situations, emphasizing one sign is enough to call 911.</p> <p>Available online.  <a href="http://www.youtube.com/watch?v=H4-rnEH4Pxo&amp;feature=plcp">http://www.youtube.com/watch?v=H4-rnEH4Pxo&amp;feature=plcp</a> - English  <a href="http://www.youtube.com/watch?v=jZGfyIUPi0k">http://www.youtube.com/watch?v=jZGfyIUPi0k</a> – Spanish  <a href="http://www.youtube.com/watch?v=PiO-5JFsaXE&amp;feature=plcp">http://www.youtube.com/watch?v=PiO-5JFsaXE&amp;feature=plcp</a> - Khmer</p>	 
<p><b>Enlighten the World on Stroke.</b> Video. American Stroke Association (ASA) and the Salvation Army Boys and Girls Club Teens (SABGCT). Uploaded August 2012.</p> <p>Stroke awareness video aimed at education youth on the signs and symptoms of stroke and need to contact 911 for medical attention. Video is the winner of the 2012 ASA Hip Hop Video Contest.</p> <p>Available online.  <a href="http://www.strokeassociation.org/STROKEORG/General/Hip-Hop-Video-Contest_UCM_440468_SubHomePage.jsp#!/submit/musicvideo/page/winner">http://www.strokeassociation.org/STROKEORG/General/Hip-Hop-Video-Contest_UCM_440468_SubHomePage.jsp#!/submit/musicvideo/page/winner</a></p>	

<p><b>Watch Those Signs.</b> Podcast series: A Cup of Health with CDC. Created February 2, 2008 by <i>Morbidity and Mortality Weekly Report</i>. Centers for Disease Control and Prevention. Released May 15, 2008.</p> <p>CDC podcast with Dr. Rob Merritt, discussing stroke risk factors, signs and symptoms, and what to do during a stroke event.</p> <p>Available online.  <a href="http://www2c.cdc.gov/podcasts/player.asp?f=9031">http://www2c.cdc.gov/podcasts/player.asp?f=9031</a></p>	
<p><b>Maintain Your Brain.</b> Podcast series: A Cup of Health with the CDC. Created November 3, 2011 by <i>Morbidity and Mortality Weekly Report</i>. Centers for Disease Control and Prevention. Released November 3, 2011.</p> <p>CDC podcast with Dr. Amy Valderamma discussing stroke with emphasis on prevention and recognizing signs and symptoms.</p> <p>Available online.  <a href="http://www2c.cdc.gov/podcasts/player.asp?f=8621636">http://www2c.cdc.gov/podcasts/player.asp?f=8621636</a></p>	

## Journal Articles and Reports

<p><b>Awareness of Stroke Warning Symptoms --- 13 States and the District of Columbia, 2005.</b> <i>Morbidity and Mortality Weekly Report</i>. Centers for Disease Control and Prevention. Published May 9, 2008.</p> <p>Review of survey findings regarding population awareness of stroke warning symptoms with additional stroke epidemiological data.</p> <p>Available online.  <a href="http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5718a2.htm">http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5718a2.htm</a></p>	
<p><b>Early Treatment Confirmed as Key to Stroke Recovery.</b> National Institute of Neurological Disorders and Stroke (NINDS). Last updated September 6, 2012.</p> <p>NINDS report on the article published in <i>The Lancet</i> on March 6, 2004 with study findings supporting early treatment as a key indicator in stroke outcome. (Original article available in PDF for online members of <i>The Lancet</i>).</p> <p>Available online.  <a href="http://www.ninds.nih.gov/news_and_events/news_articles/stroke_pooled_analysis_030404.htm">http://www.ninds.nih.gov/news_and_events/news_articles/stroke_pooled_analysis_030404.htm</a></p>	

**Improved Recognition of Heart Attack and Stroke Symptoms After a Community-Based Intervention for Older Adults, Georgia, 2006-2007.** Bell, M, Lommel, T, Fischer, JG, et al. *Preventing Chronic Disease* 2009;6(2):A41. Published April 2009.

Evaluation of community-based intervention study concluding increased interventions to increase population awareness of signs and symptoms may lead to greater preparedness and response to stroke to heart attack.

Free PDF available.

[http://www.cdc.gov/pcd/issues/2009/apr/pdf/08\\_0101.pdf](http://www.cdc.gov/pcd/issues/2009/apr/pdf/08_0101.pdf)

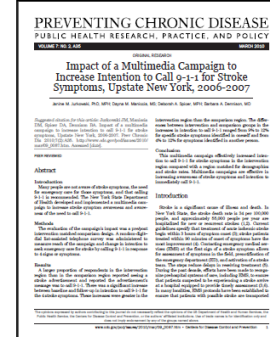


**Impact of a Multimedia Campaign to Increase Intention to Call 9-1-1 for Stroke Symptoms, Upstate New York, 2006-2007.** Jurkowski, J, Maniccia, DM, Spicer, DA, & Dennison, BA. *Preventing Chronic Disease* 2010;7(2):A35. Published March 2010.

Publication of research results supporting multimedia campaigns as an effective means to increase stroke warning signs awareness and intention to dial 911 immediately.

Free PDF available.

[http://www.cdc.gov/pcd/issues/2010/mar/pdf/09\\_0087.pdf](http://www.cdc.gov/pcd/issues/2010/mar/pdf/09_0087.pdf)

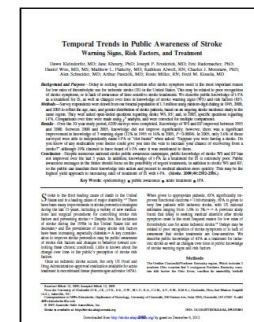


**Temporal Trends in Public Awareness of Stroke: Warning Signs, Risk Factors, and Treatment.** Kleindorfer, D, Khoury, J, Broderick, JP, et al. *Stroke*. 2009;40:2502-2506. Published June 4, 2009.

Review of research determining that education about warning signs and risk factors not enough to engage action in stroke events and prompting for inclusion of messaging regarding emergency status of stroke and need to dial 911.

Free PDF available.

<http://stroke.ahajournals.org/content/40/7/2502.full.pdf+html>

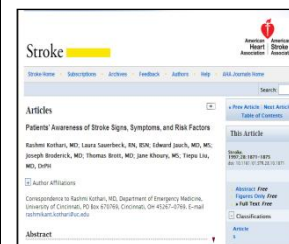


**Patients' Awareness of Stroke Signs, Symptoms, and Risk Factors.** Kothari, R, Sauerbeck, L, Jauch, E, et al. *Stroke*. 1997; 28: 1871-1875. Last revised July 24, 1997.

Overview of study finding that 40% of patients admitted for possible stroke are unfamiliar with symptoms or risk factor of stroke, need for increased education.



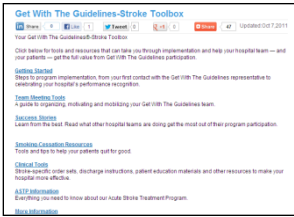

Available online.

<http://stroke.ahajournals.org/content/28/10/1871.full>



<p><b>Lack of Association Between Stroke Symptom Knowledge and Intent to Call 911.</b> Fussman, C, Rafferty, AP, Lyon-Callo, S, et al. <i>Stroke</i>. 2010;41:1501-1507; Published May 13, 2010.</p> <p>Article addressing need for increased motivation in addition to symptom education to engage public to seek immediate medical attention in stroke event, following study showing lack in appropriate reaction times and dialing 911.</p> <p>Free PDF available.  <a href="http://stroke.ahajournals.org/content/41/7/1501.full.pdf+html">http://stroke.ahajournals.org/content/41/7/1501.full.pdf+html</a></p>	
<p><b>Knowledge of Ischemic Stroke Risk Factors and Warning Signs After a Health Education Program by Medical Students.</b> Gutierrez-Jimenez, E., Gongora-Rivera, F, Martinez, HR, et al. <i>Stroke</i>. 2011;42:897-901. Published March 10, 2011.</p> <p>Detail of a successful community education program led by fourth year medical students to increase awareness of stroke signs and symptoms among the public.</p> <p>Free PDF available.  <a href="http://stroke.ahajournals.org/content/42/4/897.full.pdf+html">http://stroke.ahajournals.org/content/42/4/897.full.pdf+html</a></p>	
<p><b>Community-Based Participatory Research: A New Approach to Engaging Community Members to Rapidly Call 911 for Stroke.</b> Skolarus, LE, Zimmerman, MA, Murphy, J, et al. <i>Stroke</i>. 2011;42:1862-1866; Published May 26, 2011.</p> <p>Study findings following community-based education intervention showcasing use of video vignettes to increase population awareness of stroke symptoms as well as motivate for contacting 911 when such symptoms are presented.</p> <p>Free PDF available.  <a href="http://stroke.ahajournals.org/content/42/7/1862.full.pdf+html">http://stroke.ahajournals.org/content/42/7/1862.full.pdf+html</a></p>	
<p><b>Editorial Comment - Advertising Strategies to Increase Public Knowledge of the Warning Signs of Stroke [Editorial Comment Following].</b> Silver, FL, Rubini, F, Black, D, &amp; Hodgson, CS. <i>Stroke</i>. 2003;34:1968-1969. Published July 17, 2003</p> <p>Commentary review of study showing advertisement with television more successful avenue than print, though increase in knowledge still modest with single intervention. Commentary provided by Larry B. Goldstein, MD.</p> <p>Free PDF available.  <a href="http://stroke.ahajournals.org/content/34/8/1968.full.pdf+html">http://stroke.ahajournals.org/content/34/8/1968.full.pdf+html</a></p>	

## Toolkits

<p><b>Stroke toolkit.</b> Iowa Healthcare Collaborative (IHC).</p> <p>Online toolkit created by collaborative effort by the Iowa State Stroke Taskforce and IHC, aimed at healthcare providers with clinical guidelines and protocols and provider education.</p> <p><i>Available online.</i>  <a href="http://www.ihconline.org/asp/general/page.aspx?pid=17#Top">http://www.ihconline.org/asp/general/page.aspx?pid=17#Top</a></p>	
<p><b>Advocacy Toolkit.</b> National Stroke Association.</p> <p>Online gathering of resources to enable informed and effective advocates for policies that can improve the lives of survivors, caregivers, and families.</p> <p><i>Available online.</i>  <a href="http://www.stroke.org/site/PageServer?pagename=sankit">http://www.stroke.org/site/PageServer?pagename=sankit</a></p>	
<p><b>Get With the Guidelines – Stroke Toolbox.</b> American Heart Association.</p> <p>Accumulation of information and resources to assist providers and hospitals to successfully implement and adhere to clinical guidelines and performance markers set by the AHA based on best practice for stroke care.</p> <p><i>Available online.</i>  <a href="http://www.heart.org/HEARTORG/HealthcareResearch/GetWithTheGuidelinesHFStroke/GetWithTheGuidelinesStrokeHomePage/Get-With-The-Guidelines-Stroke-Toolbox_UCM_308030_Article.jsp">http://www.heart.org/HEARTORG/HealthcareResearch/GetWithTheGuidelinesHFStroke/GetWithTheGuidelinesStrokeHomePage/Get-With-The-Guidelines-Stroke-Toolbox_UCM_308030_Article.jsp</a></p>	
<p><b>Stroke Clinic Tools Library.</b> American Heart Association/American Stroke Association.</p> <p>Online library of clinical resources to assist providers and facilities in following Get With the Guidelines and providing advanced stroke care.</p> <p><i>Available online.</i>  <a href="http://www.heart.org/HEARTORG/HealthcareResearch/GetWithTheGuidelinesHFStroke/GetWithTheGuidelinesStrokeHomePage/Stroke-Clinical-Tools-Library_UCM_303743_Article.jsp">http://www.heart.org/HEARTORG/HealthcareResearch/GetWithTheGuidelinesHFStroke/GetWithTheGuidelinesStrokeHomePage/Stroke-Clinical-Tools-Library_UCM_303743_Article.jsp</a></p>	

## Websites

<p><b>American Heart Association</b></p> <ul style="list-style-type: none"> <li>• AHA Homepage - <a href="http://www.americanheart.org">www.americanheart.org</a></li> <li>• ASA Homepage – <a href="http://www.strokeassociation.org">www.strokeassociation.org</a></li> <li>• Professionals page - <a href="http://www.strokeassociation.org/STROKEORG/Professionals/Professionals_UCM_308581_SubHomePage.jsp">http://www.strokeassociation.org/STROKEORG/Professionals/Professionals_UCM_308581_SubHomePage.jsp</a></li> <li>• Stroke Care Near You - <a href="http://www.heart.org/HEARTORG/HealthcareResearch/QualityImprovement---Home_UCM_441814_SubHomePage.jsp">http://www.heart.org/HEARTORG/HealthcareResearch/QualityImprovement---Home_UCM_441814_SubHomePage.jsp</a></li> </ul>	 <p>The American Heart Association logo features a red heart with a white torch inside. The American Stroke Association logo features a red heart with a white brain inside. Both logos are accompanied by their respective organization names.</p>
<p><b>Centers for Disease Control and Prevention</b></p> <ul style="list-style-type: none"> <li>• Homepage – <a href="http://www.cdc.gov">www.cdc.gov</a></li> <li>• Division for Heart Disease and Stroke Prevention - <a href="http://www.cdc.gov/dhdsp/">http://www.cdc.gov/dhdsp/</a></li> <li>• Stroke Education for Professionals - <a href="http://www.cdc.gov/stroke/materials_for_professionals.htm">http://www.cdc.gov/stroke/materials_for_professionals.htm</a></li> <li>• Stroke – <a href="http://www.cdc.gov/stroke/">www.cdc.gov/stroke/</a></li> </ul>	 <p>The logo for Heart Disease &amp; Stroke Prevention features a stylized heart shape composed of three human figures in green, orange, and blue. The text 'Heart Disease &amp; Stroke Prevention' is to the right, with the tagline 'Science • Connections • Action' below it.</p>
<p><b>Million Hearts™ Initiative</b></p> <ul style="list-style-type: none"> <li>• Homepage – <a href="http://www.millionhearts.hhs.gov">www.millionhearts.hhs.gov</a></li> <li>• Resources - <a href="http://millionhearts.hhs.gov/resources.html">http://millionhearts.hhs.gov/resources.html</a></li> </ul>	 <p>The Million Hearts logo features a large, stylized heart shape with the words 'Million Hearts™' to its right.</p>
<p><b>National Heart Lung and Blood Institute</b></p> <ul style="list-style-type: none"> <li>• Explore Stroke - <a href="http://www.nhlbi.nih.gov/health/health-topics/topics/stroke/">http://www.nhlbi.nih.gov/health/health-topics/topics/stroke/</a></li> <li>• Clinical Trials - <a href="http://www.nhlbi.nih.gov/health/health-topics/topics/stroke/trials.html">http://www.nhlbi.nih.gov/health/health-topics/topics/stroke/trials.html</a></li> </ul>	 <p>The logo for the National Heart Lung and Blood Institute features a red heart with a white torch inside. The text 'National Heart Lung and Blood Institute' is to the right, with the tagline 'People Science Health' below it.</p>
<p><b>National Institute of Neurological Disorders and Stroke</b></p> <ul style="list-style-type: none"> <li>• Homepage – <a href="http://www.ninds.nih.gov/">http://www.ninds.nih.gov/</a></li> <li>• Know Stroke - <a href="http://stroke.nih.gov/">http://stroke.nih.gov/</a></li> <li>• Health Professional Resources - <a href="http://stroke.nih.gov/resources/">http://stroke.nih.gov/resources/</a></li> </ul>	 <p>The logo for the National Institute of Neurological Disorders and Stroke features a stylized brain shape with the text 'National Institute of Neurological Disorders and Stroke' to its right. Below the text is the tagline 'National Institutes of Health'.</p>
<p><b>National Stroke Association</b></p> <ul style="list-style-type: none"> <li>• Homepage – <a href="http://www.stroke.org">www.stroke.org</a></li> <li>• Healthcare Professionals - <a href="http://www.stroke.org/site/PageServer?pagename=medpro">http://www.stroke.org/site/PageServer?pagename=medpro</a></li> <li>• Stay Informed - <a href="http://www.stroke.org/site/PageServer?pagename=stayinformed">http://www.stroke.org/site/PageServer?pagename=stayinformed</a></li> </ul>	 <p>The logo for the National Stroke Association features a stylized blue hand shape with the text 'National STROKE Association™' to its right.</p>



## Reference

Funding for this project was made available under Cooperative Agreement 5U50DP000734-02 from the Centers for Disease Control and Prevention, Division of Heart Disease and Stroke Prevention with the Iowa Department of Public Health, Bureau of Chronic Disease Prevention and Management, Heart Disease and Stroke Prevention Program in 2011.

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